



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Takumi HATSUDA et al.

Serial Number: 10/764,535

Art Group Unit: 1712

Filed: January 27, 2004

Examiner: Michael J. Feely

For: WATER-ABSORBENT RESIN AND PRODUCTION PROCESS THEREFOR

DECLARATION UNDER 37 CFR 51.132

Honorable Commissioner of Patents and Trademarks

Washington, D.C. 20231

Sir:

I, Kazuki KIMURA, a citizen of Japan, hereby declare and state the following:

1. I graduated from the Department of Chemical Engineering, Faculty of Engineering, Kobe University, Hyogo, Japan in March 1993, and also received a Master of Engineering from the Graduate School of Engineering, Kobe University, Hyogo, Japan in March 1995.

2. Since April 1995, I have been employed by Nippon Shokubai Co., Ltd. of Osaka, Japan, the assignee of the present application. During my employment there, I have been engaged in research and development of water absorbent resin at the Superabsorbents Research Center of the company, wherein the name "Superabsorbents Research Center" was changed from "Polymer Research Laboratory" in April 2002.

3. I am also a co-inventor of the present application.

4. I have read and am familiar with the Office Action dated February 27, 2006, in the above-referenced patent application.

5. I have read and am familiar with the contents of the following patent related document(s) cited in the Office Action dated February 27, 2006: U.S. Patent No. 6,254,990 to Ishizaki et al. (Ishizaki).

6. Under my supervision and control, the following experiments were conducted.

EXPERIMENTS

(1) Production of water-absorbing agent

In this section, the properties were measured in accordance with the description of USP 6,254,990.

<Water-absorbing agent (1)>

A water-absorbing agent (1) was prepared in the same way as of Example 1 of USP 6,254,990 as follows.

That is, a water-absorbent resin powder (1) having a weight-average particle diameter of 310 μm was prepared in the same way as of Production Example 1 of USP 6,254,990. This water-absorbent resin powder (1) had a water absorbent amount of 41.0 (g/g), a water-soluble content of 8 weight %, a solid content of 95.6 weight %, and a specific bulk gravity of 0.4 g/cc.

A water-absorbing agent (1) was prepared in the same way as of Example 1 of USP 6,254,990 using the water-absorbent resin powder (1) as obtained above. Water-absorbing agent (1) had a water absorption capacity of 34.2 (g/g) under no load, an absorption capacity of 15.9 (g/g) under a load, and a ratio of fine particles of 150 μm or below of 1.2 weight %. The ratio of fine particles of 150 μm or below was increased by 1.2 weight %.

<Water-absorbing agent (2)>

A water-absorbing agent (2) was prepared in the same way as of Example 2 of USP 6,254,990 as follows.

That is, a water-absorbing agent (2) was obtained in the same way as of Example 1 of USP 6,254,990 except that the high-speed agitation time in the mortar mixer having pulverization function was extended to 50 minutes.

Water-absorbing agent (2) had a water absorption capacity of 31.8 (g/g) under no load, an absorption capacity of 20.0 (g/g) under a load, and a ratio of fine particles of 150 μm or below of 2.3 weight %. The ratio of fine particles of 150 μm or below was increased by 2.3 weight %.

(2) Measurement of properties of water-absorbing agent

The single-layer absorption capacity under a load, the time variation of single-layer absorption capacity under a load, the variation between particles of single-layer absorption capacity under a load, and the index of uniform surface-treatment of the water-absorbing agents as obtained above were measured according to the procedure described in the specification of the present

application. The results are shown in Table 1 in the next page.

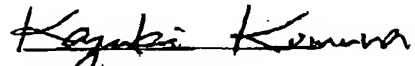
In addition, "absorption capacity without a load" of the present application and "water absorption amount under no load (absorption capacity under no load)" of USP 6,254,990 were measured by the same way. The apparatus as used for measuring of "absorption capacity under load" of USP 6,254,990 and the apparatus as used for measuring of "index of uniform surface-treatment" of the present application are the same.

	Claim of present invention	Water-absorbing agent (1)	Water-absorbing agent (2)
Absorption capacity without a load	not less than 30 g/g (claims 42 and 43)	34.2	31.8
Single-layer absorption capacity under a load	Particles having particle diameter of 600 to 300 μm (10min)	27.0 *	26.8 *
	Particles having particle diameter of 600 to 300 μm (60min)	29.2 *	29.5 *
	Particles having particle diameter of 300 to 150 μm (10min)	24.1 *	23.8 *
	Particles having particle diameter of 300 to 150 μm (60min)	24.4 *	24.1 *
Time variation of single-layer absorption capacity under a load	Particles having particle diameter of 600 to 300 μm	0.92	0.91
	Particles having particle diameter of 300 to 150 μm	0.99	0.99
Variation between particles of single-layer absorption capacity under a load	10 min	0.89	0.89
	60 min	0.84	0.82
Index of uniform surface-treatment	not less than 0.70 (claim 43)	0.68 *	0.66 *

* The measured value does not satisfy the claimed parameter

I hereby declare that all statements made herein of my own knowledge are true; and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed this 17th day of May, 2006

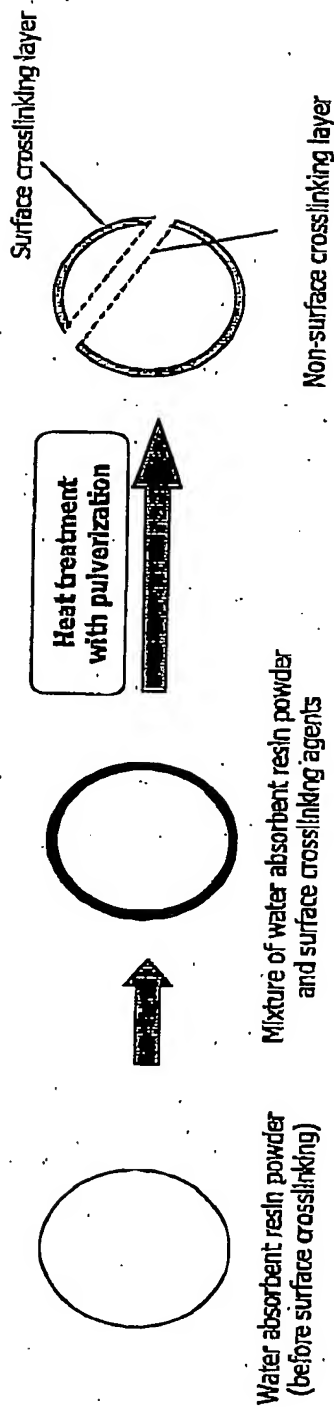

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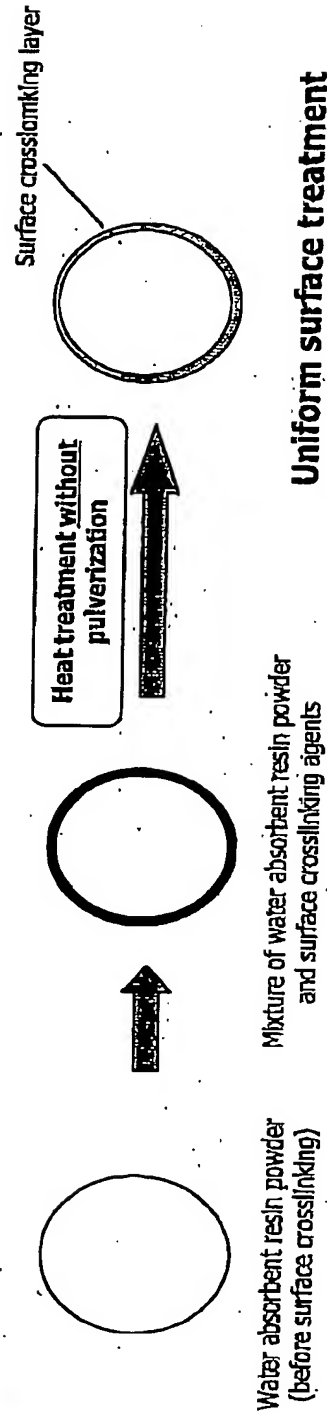


Image of surface crosslinking layer

Exp.1 and 2 of US 6,254,990B1



Our water-absorbent resin



**Uniform surface treatment
described in Claim 42 and 43**

